

Case reports

Injury to a saphenous vein graft during removal of a temporary epicardial pacing wire electrode

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SUMMARY Removal of a temporary atrial epicardial pacemaker electrode damaged a saphenous vein graft. A new blood clot was removed from the damaged graft. The hole was successfully repaired with a polypropylene suture.

Pacing wires should be carefully sited and should be removed only when facilities for urgent operation are available.

Case report

A 64 year old man with unstable angina underwent urgent saphenous vein aortocoronary bypass grafting. Sequential atrioventricular pacing by temporary epicardial pacemaker electrodes was used to facilitate weaning from cardiopulmonary bypass but the operation was otherwise straightforward. His post-operative course was similarly uncomplicated until the removal of the pacing wires on the seventh day.

Both atrial electrodes were removed easily by gentle traction but he immediately felt unwell and was found to be hypotensive with a profound bradycardia. Fortunately, his ventricular wires were still in place and pacing was started, with initial recovery. Over the next two hours his blood pressure fell and an echocardiogram confirmed the presence of a haemopericardium.

He was transferred to the operating theatre and underwent urgent re-exploration. The right atrium was compressed by a new blood clot (150 ml) originating from a tear in the saphenous vein graft to the right coronary artery. The haematoma was evacuated and, after systemic heparinisation, the graft was clamped and the hole was repaired with 7/0 prolene suture. His further progress was uneventful and he was discharged seven days later.

Discussion

The placement of temporary epicardial pacemaker

electrodes is routine in cardiac surgical practice and many surgeons use both atrial and ventricular wires.¹ The improved haemodynamic effects of sequential atrioventricular pacing and the potential for treating supraventricular arrhythmias with rapid atrial pacing are well recognised.²

We use a standard technique for fixing atrial epicardial electrodes. A 1 cm loop of bare wire is sutured high on the right atrial wall with a 6/0 polypropylene (Prolene) and we prefer to site a second similar atrial wire rather than an indifferent electrode. This has been shown to be more useful for diagnostic purposes and also causes less distortion of the electrocardiogram by the stimulus artefact during pacing.³ Several reports have emphasised the low complication rate with this implantation technique and subsequent removal of the wires by gentle traction.^{3,4} Clinical and animal studies have not shown atrial bleeding to be an important problem⁵ and we can find no previous report of graft injury during removal of a pacing wire.

Most ventricular electrodes can be sited on the anterior surface of the right ventricle remote from any grafts. Right atrial wires, however, often need careful positioning and this is a particular problem when two grafts are anastomosed proximally to the right aspect of the aorta.

Recognising the possibility of late injury, we now try to site the electrodes where they can be removed without jeopardising a graft. We also believe that the timing of removal is important. Our policy is to remove pacing wires early in the morning to permit observation throughout the day with optimum conditions for further investigation or operation. We never remove wires on the morning of discharge.

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